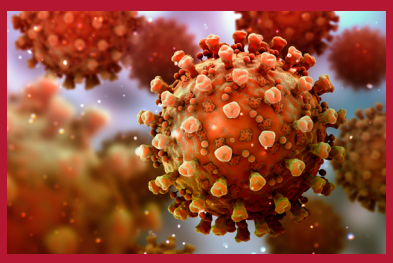
Coronavirus (COVID-19)



Coronavirus disease 2019 (COVID-19 or SARS-CoV-2) is a virus that first appeared in Wuhan, China in late 2019. COVID-19 is a virus that is likely to have zoonotic origins much like other coronaviruses; SARS (SARS-CoV) and MERS. This disease is highly contagious and is now classified as a pandemic. Although most people infected are asymptomatic, have mild or varied symptoms, severe cases include difficulty breathing and require hospitalisation. The vulnerable population include people over 60 and those with a weakened immune system or pre-existing health conditions.

People with higher chances of complications include smokers, those with diabetes, cardiovascular disease, chronic respiratory disease, and cancer. Since there are still many unknowns, researching this disease is paramount amongst the scientific community. Please check the World Health Organization (WHO) website for the most up to date information.

The virus spreads from person to person by respiratory droplets in the air. When an infected individual coughs or sneezes, someone nearby may breathe in and then COVID-19 enters the system through the nose and mouth. Exposure can also occur by touching contaminated surfaces and then touching the face with unwashed hands. A recent study conducted by the National Institute of Allergy and Infectious Diseases in the United States concluded that COVID-19 can be present in aerosols for up to three hours. Additionally, the virus can live up to four hours on copper surfaces, survive up to 24 hours on cardboard, and two to three days on plastic and stainless-steel (N van Doremalen, *et al*). The incubation period (from exposure to showing symptoms) is estimated to be 1-14 days and about five days on average. Current testing utilises oral swab samples which are then tested using PCR (polymerase chain reaction) for evidence of COVID-19's genetic material. Other detection methods are in progress including testing for antibodies to confirm prior infection.

Diagnostic Symptoms

- Fever
- New and continuous dry cough
- Fatigue

Other Symptoms

- Shortness of breath
- Anosmia (loss of smell)
- Sore throat
- Body aches
- Nasal congestion
- Diarrhoea
- Nausea

Complications include pneumonia, viral sepsis and organ failure.

Preventative Measures

- Washing hands regularly with soap and water for at least 20 seconds
- Using an alcohol-based rub in absence of soap and water
- Avoiding touching of the face with unwashed hands
- Disinfecting regularly touched surfaces
- Covering of the mouth and nose when sneezing or coughing (not with hands)
- Avoiding contact with others that are unwell
- Staying at home if feeling ill
- Social distancing by keeping a 2-metre distance away from others outside of your home and avoiding large gatherings
- Avoiding travelling where possible

Trials and looking to the future

Currently, there are no vaccines or treatments for COVID-19, but some clinical trials aim to find drugs already available to help aid in treatment of the disease.

The WHO is leading SOLIDARITY, a trial that will include thousands of patients from all over the world that will be tested with one of the random drugs below for treatment. Enrollment will be simple for the physician and completed on the WHO website, then physicians will record the length of the hospital stay, day the patient was discharged or passed, and if oxygen or ventilation was necessary. Collecting this data will help determine what drugs could possibly work hopefully saving lives, protect healthcare workers, the most vulnerable, and reduce time spent in the hospital. The drugs have been selected for testing by scientists that have reviewed previous cases and studies. In addition, a European counterpart and add on trial called DISCOVERY, will be led by the French biomedical research agency (INSERM) and will include the same drugs below, minus chloroquine. DISCOVERY is planning to include 3200 European patients from eight countries.

Remdesivir

This is an antiviral originally developed to fight Ebola and other similar viruses. Remdesvir inhibits the main viral enzyme (RNA dependent RNA polymerase) and interferes with replication. Some success has been seen in individual cases of COVID-19 and a study involving other coronaviruses; SARS and MERS.

Chloroquine and Hydroxychloroquine

These are antimalarials that decrease acidity in membrane-bound vesicles inside cells called endosomes. Few studies have been published but some show possible activity against COVID-19 increasing the interest in these classic antimalarials.

Kaletra- Ritonavir/Lopinavir

Kaletra is an antiretroviral combination medication mainly used to fight HIV infections. Lopanir and Ritonavir are both protease enzyme inhibitors that perform more efficiently when paired together. A previous study shows that Kaletra might be effective in fighting coronaviruses.

Kaletra- Ritonavir/Lopinavir and interferon-beta

Kaletra with the addition of interferon-beta, an anti-inflammatory and antiviral agent, has been of interest to MERS coronavirus studies.

Whilst ineffective against viruses, antibiotics may be used to treat secondary infections, which are not uncommon with viral pneumonia.

To learn more about our extensive range of antibiotics contact us on sales@chiron.no

References:

https://www.who.int/emergencies/diseases/novel-coronavirus-2019 https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

https://www.nhs.uk/conditions/coronavirus-covid-19/more-information/

https://www.health.harvard.edu/diseases-and-conditions/coronavirus-resource-center

https://www.niaid.nih.gov/news-events/new-coronavirus-stable-hours-surfaces

https://www.nejm.org/doi/full/10.1056/nejmc2004973

https://www.who.int/docs/default-source/coronaviruse/whoinhouseassays.pdf?sfvrsn=de3a76aa_2

https://www.newscientist.com/article/2238477-how-does-coronavirus-testing-work-and-will-we-have-a-home-test-soon/

https://www.sciencemag.org/news/2020/03/who-launches-global-megatrial-four-most-promising-coronavirus-treatments

https://presse.inserm.fr/en/launch-of-a-european-clinical-trial-against-covid-19/38737/

https://clinicaltrials.gov/ct2/show/NCT04280588

Chiron Reference Materials

Part no.	Description	CAS
2524.8	Acetaminophen (Paracetamol)	103-90-2
9244.8	Acetaminophen-d3 (Paracetamol-d3)	60902-28-5
9245.8	Acetaminophen-d4 (Paracetamol-d4)	64315-36-2
12743.38	Azithromycin	83905-01-5
11629.38	Azithromycin dihydrate	117772-70-0
15279.18	Chloroquine diphosphate	50-63-5
11347.18	Hydroxychloroquine sulfate	747-36-4
15286.19	Fingolimod hydrochloride	162359-56-0
15287.5	Favipiravir	259793-96-9
15292.12	GS-441524	1191237-69-0
10596.37	Lopinavir	192725-17-0
15291.27	Remdesivir	1809249-37-3
10597.37	Ritonavir	155213-67-5

Whilst reducing transmission and identification of the most efficacious treatment regimens is paramount, the longer-term environmental impact of the significant increase in personal care products (PCP), such as soaps, hand sanitisers and disinfectants remains to be seen.

Chiron also offer a wide range of reference materials for hygienics and other PCP. See our other newsletters:

BMF 47: Allergens

BMF 64: Parabens

BMF 73: Sunscreen

BMF 82: Triclosan

Available via our Agency Partners

Part no.	Description	CAS
TR-A927002	Azithromycin-d3	163921-65-1
TR-A927004	Azithromycin-d5	83905-01-5 (unlabelled)
TR-A927003	Azithromycin-13Cd3	83905-01-5 (unlabelled)
TR-C150300	Camostat Mesylate	59721-29-8
TR-C150303	Camostat Mesylate-d4	59721-29-8 (unlabelled)
TR-C379967	Chloroquine-d4 diphosphate Salt	50-63-5 (unlabelled)
TR-D288735	Desethyl Chloroquine	1476-52-4
TR-C573502	Desethyl Chloroquine-d4 oxalate	1216461-57-2
TR-C573505	Desethyl Hydroxychloro-quine	4298-15-1
TR-H916902	Hydroxychloroquine-d4 Sulfate	1216432-56-2
TR-F754500	FOY 251	71079-09-9
TR-F754502	FOY 251-d4	71079-09-9 (unlabelled)
TR-L469482	Lopinavir-d8	1322625-54-6
TR-N210000	Nafamostat Mesylate	82956-11-4
ALS-C8854	[U-Ring-13C6]-Remdesivir (mixture of diastereoiso-mers)	1809249-37-3 (unlabelled)
ALS-C8855	[13C5]-GS 441524	1191237-69-0 (unlabelled)
TR-R535003	Ritonavir-13C3	1217673-23-8
TR-R535002	Ritonavir-d6	1217720-20-1

For ordering and information about prices and delivery in your country, please contact your local distributor:

Your quality is our business

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